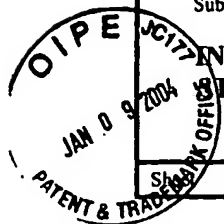


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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 4

Complete if Known

Application Number: Unknown
Filing Date: September 29, 2003
First Named Inventor: Alex S. GOLDENBERG
Group Art Unit: 2673
Examiner Name: Unassigned
Attorney Docket Number: IMMR-073/02US

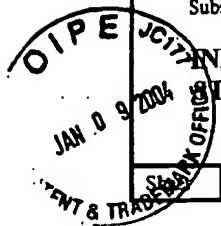
PTO/SB/08A (08-00) (1 of 2)

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
S.M.	A1	6,373,463		Beeks	04/2002
	A2	5,977,867		Blouin	11/1999
	A3	5,785,630		Bobick, et al.	07/28/1998
	A4	5,766,016		Sinclair et al.	06/16/1998
	A5	5,742,278		Chen et al.	04/1998
	A6	5,736,978		Hasser et al.	04/1998
	A7	5,734,373		Rosenberg et al	03/1998
	A8	5,694,013		Stewart et al.	12/1997
	A9	5,547,382		Yamasaki et al.	08/20/1996
	A10	5,466,213		Hogan et al.	11/14/1995
	A11	5,334,027		Wherlock	08/02/1994
	A12	5,309,140		Everett, Jr., et al.	05/03/1994
	A13	5,299,810		Pierce et al.	04/05/1994
	A14	5,296,871		Paley	03/1994
	A15	5,275,174		Cook	01/04/1994
	A16	5,271,290		Fischer	12/21/1993
	A17	5,240,417		Smithson et al.	08/31/1993
	A18	5,212,473		Louis	05/18/1993
	A19	5,078,152		Bond et al.	01/07/1992
	A20	5,038,089		Szakaly	08/06/1991
	A21	5,035,242		Franklin et al.	07/30/1991
	A22	5,022,407		Horch et al.	06/11/1991
	A23	5,019,761		Kraft	05/28/1991
	A24	4,934,694		McIntosh	06/19/1990
	A25	4,930,770		Baker	06/05/1990
	A26	4,891,764		McIntosh	01/02/1990
	A27	4,794,392		Selinko	12/27/1988
	A28	4,713,007		Alban	12/15/1987
	A29	4,708,656		de Vries et al.	11/24/1987
	A30	4,599,070		Hladky et al.	07/08/1986
	A31	4,581,491		Boothroyd	04/08/1986
	A32	4,513,235		Acklam et al.	04/23/1985
	A33	4,236,325		Hall et al.	12/02/1980
	A34	4,160,508		Salisbury, Jr.	07/10/1979
	A35	3,911,416		Feder	10/07/1975
	A36	3,903,614		Diamond et al.	09/09/1975
	A37	3,902,687		Hightower	09/02/1975
	A38	3,623,064		Kagan	11/23/1971
	A39	3,517,446		Corlyon et al.	06/30/1970
	A40	3,497,668		Hirsch	02/24/1970
	A41	3,220,121		Cutler	11/30/1965
	A42	3,157,853		Hirsch	11/17/1964

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.



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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	Unknown	
		Filing Date	September 29, 2003	
		First Named Inventor	Alex S. GOLDENBERG	
		Group Art Unit	2673	
		Examiner Name	Unassigned	
2	of	4	Attorney Docket Number	IMMR-073/02US

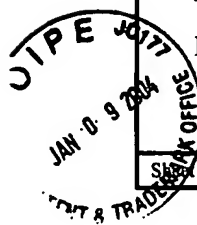
FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁴
		Office ¹	Number ²	Kind Code ³ (if known)			
—	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990	

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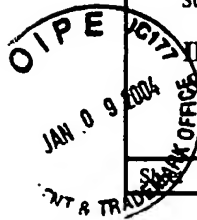
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		Filing Date	September 29, 2003
		First Named Inventor	Alex S. GOLDENBERG
		Group Art Unit	2673
		Examiner Name	Unassigned
		Attorney Docket Number	IMMR-073/02US
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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
<div style="text-align: center;">↓</div>	C1	Balgrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990		
	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993		
	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90		
	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/11/1985		
	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990		
	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993		
	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989		
	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990		
	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90		
	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993		
	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992		
	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI1-11:00, pp. 332-337		
	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992		
	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992		
	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993		
	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990		
	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90		
	C18	Bejezy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980		
	C19	Bejezy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981		
	C20	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL 1988</i> , JPL D-5172		
	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95		
	C22	Jacobsen et al., "High Performance, Dexterous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991		
	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992		
	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990		
	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988		
	C26	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992		
	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993		



Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	Unknown
		Filing Date	September 29, 2003
		First Named Inventor	Alex S. GOLDENBERG
		Group Art Unit	2673
		Examiner Name	Unassigned
Attorney Docket Number	IMMR-073/02US		

—	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987	
↓	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980	
↓	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989	
↓	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995	
↓	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994	
↓	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	

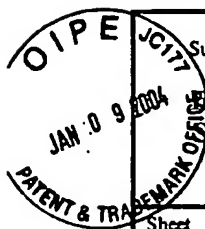
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet	1	of	1	Application Number	Unknown
				Filing Date	September 29, 2003
				First Named Inventor	Alex S. GOLDENBERG
				Group Art Unit	2673
				Examiner Name	Unassigned
				Attorney Docket Number	IMMR-073/02US

PTO/SB/08A (08-00) (2 of 2)

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
S.M.	A1	6,424,333		Tremblay et al.	07/23/2002
S.M.	A3	6,275,213		Tremblay et al.	08/14/2001
S.M.	A4	6,088,017		Tremblay et al.	07/11/2000

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁶
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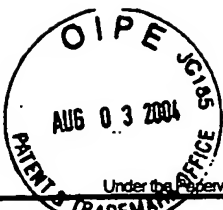
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⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

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Sheet 1

of 6

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Application Number	10/671,465
Filing Date	September 29, 2003
First Named Inventor	Alex S. Goldenberg
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR-073/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
S.M.		20030201975	10/30/03	Bailey et al.	
		20020030663	3/14/02	Tierling et al.	
		6,717,573	4/6/04	Shaholian et al.	
		6,707,443	3/18/04	Bruneau et al.	
		6,697,043	2/24/04	Shaholian et al.	
		6,585,595	7/1/03	Soma et al.	
		6,422,941	7/23/2002	Thomer et al.	
		6,317,032	11/13/01	Oishi	
		6,211,861	4/3/01	Rosenberg et al.	
		6,198,206	3/6/01	Saamaa et al.	
		6,184,868	2/6/01	Shaholian et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		6,104,158	8/5/00	Jacobus et al.	
		6,088,019	7/11/00	Rosenberg	
		6,078,126	6/20/00	Rollins et al.	
		6,044,646	4/4/00	Silverbrook	
		6,004,134	12/21/99	Marcus et al.	
		6,001,014	12/14/99	Ogata et al.	
		5,986,643	11/16/99	Harvill et al.	
		5,984,880	11/16/99	Lander et al.	
		5,973,670	10/26/99	Barber et al.	
		5,945,772	8/31/99	Macnak et al.	
		5,914,705	8/22/99	Johnson et al.	
		5,897,437	4/27/99	Nishiumi et al.	
		5,894,263	4/13/99	Shimakawa et al.	
		5,889,672	3/30/99	Schuler et al.	
		5,857,986	1/12/99	Moriyasu	
		5,805,140	9/8/98	Rosenberg et al.	
		5,790,108	8/4/98	Salcudean et al.	
		5,784,052	7/21/98	Keyson	
		5,781,172	7/14/98	Engel et al.	
		5,754,023	5/19/98	Roston et al.	
		5,742,278	4/21/98	Chen et al.	
		5,739,811	4/14/98	Rosenberg et al.	

Examiner
Signature

/Seokyun Moon/

Date
Considered

07/06/2006

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STATEMENT BY APPLICANT**

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Sheet **2** of **6****Complete if Known**

Application Number	10/671,465
Filing Date	September 29, 2003
First Named Inventor	Alex S. Goldenberg
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR-073/02US

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		5,709,219	1/20/98	Chen et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,684,722	11/4/97	Thomer et al.	
		5,669,818	9/23/97	Thomer et al.	
		5,661,446	8/26/97	Anderson et al.	
		5,643,087	7/1/97	Marcus et al.	
		5,631,861	5/20/97	Kramer	
		5,619,180	4/8/97	Massimino et al.	
		5,589,828	12/31/96	Armstrong	
		5,587,937	12/24/96	Massie et al.	
		5,583,478	12/10/96	Renzi	
		5,580,251	12/3/96	Gilkes et al.	
		5,575,761	11/19/1996	Hallanpour	
		5,565,840	10/15/96	Thomer et al.	
		5,440,183	8/8/95	Denne	
		5,437,607	8/1/1995	Taylor	
		5,436,622	7/25/1995	Gutman et al.	
		5,405,152	4/1/95	Katanics et al.	
		5,399,091	3/21/95	Mitsumoto	
		5,388,992	2/14/95	Franklin et al.	
		5,354,162	10/11/94	Burdea et al.	
		5,283,970	2/8/1994	Aigner	
		5,203,563	4/20/93	Loper, III	
		5,186,695	2/16/1993	Mangseth et al.	
		5,186,629	2/16/93	Rohen	
		5,184,319	2/2/93	Kramer	
		5,175,459	12/29/1992	Daniel et al.	
		5,165,897	11/24/1992	Johnson	
		5,146,566	9/8/92	Hollis, Jr. et al.	
		5,107,262	4/21/92	Cadoz et al.	
		5,103,404	4/7/92	McIntosh	
		5,022,384	6/11/1991	Freels	
		4,885,585	12/5/1989	Embach	
		4,868,549	9/19/89	Affinito et al.	

Examiner Signature	/Seokyun Moon/	Date Considered	07/06/2006
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STATEMENT BY APPLICANT**

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Sheet **3**of **6****Complete if Known**

Application Number	10/671,465
Filing Date	September 29, 2003
First Named Inventor	Alex S. Goldenberg
Art Unit	2673
Examiner Name	Unassigned
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S.M.		4,795,296	1/3/89	Jau	
		4,731,603	3/15/88	McRae et al.	
		4,706,294	11/10/87	Ouchida	
		4,484,191	11/20/1984	Vavra	
		4,464,117	8/7/1984	Foerst	
		4,414,984	11/15/83	Zarudiansky	
		4,333,070	6/1/1982	Barnes	
		4,262,549	4/21/1981	Schwellenbach	
		4,127,752	11/28/1978	Lowthorp	
		3,919,691	11/11/75	Noll	
		2,972,140	2/14/1961	Hirsch	
		RE37,374	9/18/01	Roston et al.	

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		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	
		WO	92/00559		1/9/1992		
		EP	0607580	A1	7/27/1994		
		EP	0265011		4/27/1988		
		EP	0626634	A2	5/11/1994		
		WO	01/03105		1/11/2001		
		WO	01/24158		4/5/2001		
		WO	97/31333		8/28/1997		
		WO	01/13354		2/22/2001		
		WO	98/32112		7/23/1998		
		WO	99/40504		12/8/1999		
		WO	02/27705		4/4/2002		

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Sheet **4**

of **6**

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Application Number	10/671,465
Filing Date	September 29, 2003
First Named Inventor	Alex S. Goldenberg
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR-073/02US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
—		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.biblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
↓		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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	5	of	6
		Application Number	10/671,465
		Filing Date	September 29, 2003
		First Named Inventor	Alex S. Goldenberg
		Art Unit	2673
		Examiner Name	Unassigned
		Attorney Docket Number	IMMR-073/02US

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—		*Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502,* Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).	
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994	
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992	
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.	
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.	
		SCHMILT, Brian et al., "Application Areas for a Force-Feedback Joystick," <i>ASME</i> 1993, DSC-Vol. 49, pp. 47-54.	
		HASSER, Christopher John, "Tactile Feedback for a Force-Reflecting Haptic Display," <i>The School of Engineering, University of Dayton</i> , December 1995, pp. iii-xii & 1-96.	
		AKAMATSU, M. et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display," <i>Presence</i> , Vol. 3, No. 1, 1994, pp. 73-80.	
		KELLEY, A. J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," <i>Dept. of Elec. Eng., Univ. of Brit. Columbia</i> , 1993, pp. 1-27.	
		HASSER, C. et al., "Tactile Feedback with Adaptive Controller for a Force-Reflecting Haptic Display," <i>Parts 1&2, IEEE 0-7803-3131-1</i> , 1996, pp. 526-533.	
		RAMSTEIN, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," <i>ASSETS '96, 2nd Annual ACM Conf. on Assistive Technologies</i> , 1996, pp. 37-44.	
		DENNERLEIN, et al., "Vibrotactile Feedback for Industrial Telemanipulators," <i>ASME IMECE, 6th Annual Symp. On Haptic Interfaces for Virtual Environment and Teleoperator Systems</i> , Nov. 1997, pp. 1-7.	
		MINSKY, Margaret et al., "Feeling and Seeing: Issues in Force Display," <i>ACM 089791-351-5</i> , 1990, pp. 235-242.	
		OUH-YOUNG, M. et al., "Creating an Illusion of Feel: Control Issues in Force Display," <i>Computer Science Dept., University of North Carolina</i> , 1989, pp. 1-14.	
↓		HASSER, C., "Force-Reflecting Anthropomorphic Hand Masters," <i>AL/CF-TR-1995-0110</i> , 1995, pp. 5-31.	

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Sheet **6** of **6****Complete if Known**

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—		KIM, Won, "Telemanipulator Technology and Space Telerobotics," SPIE Proceedings, 1993, Vol. 2057, pp. 40-50.

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